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# Long-term motivations to play MMOGs: A longitudinal study on motivations, experience and behavior

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## ABSTRACT

The upward trend in the sector of the digital games goes on. An evolution takes place, which is capable to go to many directions. On the one hand computer graphics become more realistic, games are more complex and the speed, as well as the distribution, of the internet increases steadily. On the other hand another trend appears: browser-games, also called MMOGs (Massive Multiplayer Online Games). Games, which are text-based or contain only few graphical content and are playable without local installation on the computer. Only an internet connection and a browser is needed to use them. These persistent online-worlds, in this special case a browser-game called "Space Merchant Realms", are the object of investigation in this work.

Before the empirical analysis is proceeded, the object of investigation is defined in the sector of computer-games and online-games. Subsequently the identification of usage-motivations, gameplay-experience and playing-behavior is, as well as its temporal variation, in focus. In this longitudinal research, the usage-motivations are examined with help of the Uses-and-Gratification-Approach and the gameplay-experience is examined with the flow-theory. In two waves of the questionnaire (Nt0=125; Nt1=135), which were surveyed at an interval of ten weeks, several results could be extracted. Ten game motivation factors (total variance 67,175%) and four game experience factors (total variance 58.5%) appeared by the usage of factor analysis. Based on self-evaluation of players, further statements on playing-behavior could be encountered.

Moreover the variations of usage-motivations, gameplay-experience and playing-behavior after ten weeks were determined. Four of the ten motivationfactors arose (one of these significant), while six factors stayed constant. Three of the experience-factors became less important (one of these highly significant) and one remained constant. The time of usage demonstrably decreased within ten weeks. This investigation which claims to be a kind of pilot study, is the first step into an integrated investigation of browser-games.

## Author Keywords

MMOGs, browser-games, online-games, usage, gameplay,

motivations, experience, behavior, longitudinal research

## INTRODUCTION

User numbers of MMOGs rose since the beginning of 2006 more strongly than ever. In Germany millions[1] are counted and there's no end of the boom in sight, so this trend surely will not stop for some time. Due to this fact a more exact scientific investigation of this kind of online games is very important for communication-scientific as well as economic reasons.

In the following study a browser-game named Space Merchant Realms[2] and its users are examined. All questions on usage-motivations, gameplay-experience as well as playing-behavior will be answered. Especially the variation of usage-motivations, gameplay-experience and playing-behavior after a period of ten weeks is observed. It is necessary to find out, what ties a player down to play days, weeks or months the the same online-game and why one spends every day many time on constantly repeating activities, without losing motivations to do that. Which motivations bring players to the game and which gratifications are they expecting by the use of browser-games. In order to examine this, the Uses-and-Gratifications-Approach[3] is used and linked with Csikszentmihalyis[4] flow theory.

This leads to the following questions to be answered in this study:

- Which motivations lead to the playing of browser-games?
- How is gaming of browser-games experienced by players?
- How vary usage-motivations, gameplay-experience and playing-behavior in a period of ten weeks?

## METHOD

In this work Csikszentmihalyis[4] flow theory is integrated into Yees[5] and Seiferts[6] model of player-motivations. At the beginning of the questionnaire is checked if playing browser-games is an autotelic experience and thus flow theory could be used. This is measured in a battery with a five-point scale, which contains nine items. These items are based on Csikszentmihalyi and Seifert. In this way one queries, which things are "unimportant" or "very important"

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reasons for actual playing. The enquiry of usage-motivations takes place via two five-point scaled batteries. The first of these batteries contains twelve items and queries, how often players do certain activities in the game. Possibilities to answer are from "never" to "very often". The second battery contains 23 items, which ask, how much users like different game-referred things / activities. Response possibilities are between "not at all" and "very much". These 35 items of usage-motivations are based on Yee and Seifert. For the enquiry of the playing-experience again a five-point scaled battery is used. It consists of 18 items, which are based on Csikszentmihalyis studies. Here the participants should compare their feelings during the gameplay with feelings in real-life situations. The possible answers are between "very similar" and "not at all similar". Finally sociodemographical data and additional information, like playing duration and places of gaming, is surveyed. Precisely because this is a longitudinal study all items specified are queried again after ten weeks.

## RESULTS

### User focus

#### *Sociodemographic results*

Altogether N=183 gamers participated in both waves of the questionnaire. The number of those can vary from item to item, because each participant did not answer all questions. The participants of the study are between 14 and 58 years old, 6 % are female and 94 % are male. The average age of female players amounts to 28.5 years, that of male players 25.6 years and the average age of the total sample is 25.8 years (N=182). Thus there is a relatively high average age as well as a broad dispersion of the age accordingly to other computer games like World of Warcraft[6]. 29 participants (16 %) are under 18 years old, 76 participants (41.8 %) are between 18 and 24 years old and 77 participants (42.3 %) are over 24 years old. A higher average age of the female players is remarkable as well as the relatively high count of players which are over 24 years old.

Table 1: Age and Sex of the participants (N=182)

	female	male	aggregated
N(abs.)	11	172	183
N(rel.)	6%	94%	100%
Average Age (years)	28.5	25.6	25.8

49,7 % of the asked players were active workers, 25.1 % were studying, 15.3 % pupil, 6 % dedicated to other activities and 3,8 % were unemployed. Here is an unexpectedly large portion of employed players shown, which almost constitutes half of the sample. 51.6 % of the players were single, 28.6 % lived in a unmarried partnership and a 19.8 % were married. An unforeseeably high portion

of players, who live in a partnership or are married shows up here. 70,8 % of the participants indicate to already have an own internet connection for five years or longer, 26.3 % already over 10 years. That permits the conclusion that a big part of the players can be called "early adopters". Another important question which can be clarified is how players discovered the game. 51.6 % got to know to the game by advertisements and 34,1 % by friends. Other persons, like partners, family members or colleagues, hardly play a role for getting to know to the game. Another question was, how much money the players would spend per month for a browser-game like Space Merchant Realms. 61.7 % - nearly two thirds - would spend no money for browser-games, that represents a quite clear vote for free MMOGs. 22,4 % would spend 5 US\$ on a Browsergame. Altogether there were answers between 0 and 100 US\$, whereby the last number seems not to be not realistic. On average players would pay an amount of 3,17 US\$ (N=183). In spite of a tendency to indicate rather a smaller amount than one is willing to pay the average of about 3 US\$ should be a realistic amount, which players are willing to pay for a browser-game monthly. The players of Space Merchant Realms live mostly (59.6 %) in the USA and in Europe (20.2 %). Altogether participated player from 17 countries and six continents in this two waves of the survey, which points on the fact that the game is known and played world-wide.

#### *Playing behavior*

The following results to the playing behavior refer to the first of the two waves of the survey ( $t_0$ ). 74,7 % of the asked participants play other MMOGs except Space Merchant Realms, 83.9 % play generally computer games. The average playing time on weekdays (Monday - Friday) for all played MMOGs was 7.01 hours per day (N=122). On weekends the average playing time is 5.37 hours per day (N=122). Space Merchant Realms is played average 5.33 hours per day (N=122) weekdays (Monday - Friday) and 4.29 hours per day (N=122) on weekends. The average values seem to be realistic and it can be concluded that browser-gamer are very active players. So these games are for active players a big part of their own spare time. The, with distance, most popular place for playing browser-games is as expected the own home. Subsequently, follow "work/university/school", "friends", "other places" and "internetcafes/clubs", whereby the last three weren't significantly important. If one considers this, it shows up that browser-games not only are a considerable part of the players spare time, they also are used during the work time, lecture time or in school. It shows up that even 61.5 % of the players played the game at least occasionally at work, university or in school. These tendencies are favoured by the kind of medium a browser-game is. Players can play apart from other activities and it's not necessary to give 100 % attention. The fact that the asked players are occupied very intensively by browser-games and also the

experience with computers and internet for many years leads to the question, how long the participants already use browser- and PC-games in general. Thus play 80.9 % of the players who use also PC-games (N=152), use these already since more than five years, 44.7 % over 10 years. Also indicated 44.2 % (N=181) to play browser-games since at least five years. Space Merchant Realms, which exists only since about five years play 72.9 % of the participants (N=181) already over two years, 54.1 % play over three years. It existists clearly a core of players, which plays constantly. 21 % the participant play the game since less than one year, 16.6 % even since less than a half year. Between those two goupes, the core and the newer players, there are some players (6.1 %) who play the game between one and two years. This leads to the conclusion, that there are on the one hand certain core players and on the other hand a fluctuating group of players, who come to the game, but do not remain a longer time. This could be explained by many reasons, e.g. the difficulty or the dominance of the core players.

#### Usage-motivations

All 35 items were examined by factor analysis to assign the items to different motivation factors. The analysis shows ten factors. First ranked before all other factors is "competition / learning", which explains 9.271 % of the variance. After that, the factor "integration of reality / friendship" explains 8.028 % of the variance. With 7,734 % of explained variance the factor "escapism" follows. These three factors are the most important motivation factors of the players. After them follow, with in short distance to each other, the factors "playing solo" and "exploration", which explain 6.985 % and 6.899 % of the variance. The remaining five factors explain between 5,167 % and 5.951 % of the variance. Apart from the three most important factors, two are in the centre zone of the scale and five at the end. All factors explain together 67.175 % of the variance, so there are still further usage-motivations, which lead to play the MMOG Space Merchant Realms.

Table 2: Explained variance of usage-motivations (N=125)

<b>Factors</b>	<b>Variance Accumulated</b>	
Competition/ Learning	9.271 %	9.271 %
Integration of reality	8.028 %	17.298 %
Escapism	7.736 %	25.035 %
Playing solo	6.985 %	32.019 %
Exploration	6.899 %	38.919 %
Leading	5.951 %	44.870 %
Anger / Taunt	5.870 %	50.740 %
Community	5.689 %	56.429 %
Performance	5.580 %	62.008 %
Game-	5.167 %	67.175 %

#### mechanics

#### Gameplay-Experiance

All 18 items were examined, exactly like the items of the usage-motivations, by factor analysis, in order to assign them to different gameplay-experience factors. In this way four factors of gameplay-experience were extracted. On first position the factor "experience in community / challenge" is determined with big distance before all other factors. It explains 23.019 % of the all over variance and thus clearly more, than the following factors. The centre zone is formed by the factors "creativity / exploration / friends" and "relaxation". The first one of these two factors explains 13.351 % of the variance, the second one 13.242 %. These two factors are nearly equal in variance. The end is formed by the factor "thrill / mathematics" with 8,888 % of the all over variance. The extracted factors explain together only 58.5 % to the variance, therefore are still different, not observed, kinds of gameplay-experience in Space Merchant Realms.

Table 3: Explained variance of gameplay-experiance (N=125)

<b>Factors</b>	<b>Variance Accumulated</b>	
Experience in community	23.019 %	23.019 %
Creativity/ Exploration	13.351 %	36.370 %
Relaxation	13.242 %	49.612 %
Thrill/ Mathematics	8.888 %	58.500 %

#### Longitudinal variations of usage-Motivations

By use of an index variable the variations of usage-motivations after ten weeks were calculated. So the value of all motivations at different points of time can be compared.

The comparison of all index values of usage-motivation factors shows up that six of the factors remain constantly and four of the factors change positively. These are the factors "integration of reality / friendship", "escapism", "exploration" and "anger / taunt". In these factors the need of players to receive the contained gratifications rises. It is remarkable that none of the usage-motivation factors shows a significantly negative change. The increase of the indices of the motivations can be interpreted in such a way as successful satisfaction of the respective needs leads to this increase. The player recognizes that certain expectations are fulfilled, whereby the factor gains significantly. Also the constant factors point to a fulfillment of expectations.

Table 4: Variations of usage-motivations

Factor	Index t <sub>1</sub>	Index t <sub>2</sub>	Var.
Competition/ Learning	3.63	3.60	-0.02
Integration of reality	2.70	2.81	0.11
Escapism	2.81	2.93	0.12
Playing solo	2.94	2.95	0.01
Exploration	3.12	3.33	0.21
Leading	2.83	2.79	-0.04
Anger / Taunt	2.16	2.44	0.28*
Community	3.71	3.73	0.01
Performance	3.94	3.97	0.03
Game- mechanics	3.82	3.82	0.00

\* significant ( $p \leq 0.1$ )

#### Longitudinal variations of gameplay-experience

With the same method of an index variable the variations of the gameplay-experience factors were measured. The comparison of the index values shows the reverse picture accordingly to the usage-motivations. Here only one factor remains constantly, while the other three change negatively. That means that gameplay-experience generally decreases. Especially the factors "experience in community / challenge", "relaxation" and "thrill / mathematics". The factor "creativity/ exploration / friends" remains constant. This negatively changes for three of the four extracted kinds of gameplay-experience speaks a clear language, but can't be explained completely, because there are to many unknown variables that influence the users gameplay-experience. It is a fact, that gameplay-experience decreases altogether.

Table 5: Variations of gameplay-experience

Factor	Index t <sub>1</sub>	Index t <sub>2</sub>	Var.
Experience in community	3.80	3.33	-0.46*
Creativity/ Exploration	2.74	2.78	0.04
Relaxation	3.23	3.01	-0.22
Thrill/ Mathematics	3.36	3.24	-0.11

\* significant ( $p \leq 0.01$ )

#### Logitudinal variation of usage-time

The usage-time of all players playing Space Merchant Realms changes negatively after ten weeks of playing, too.

Table 6: Variations of usage-time (in hours per day)

	Usage t <sub>1</sub>	Usage t <sub>2</sub>	Variation
Weekdays	5.33	4.63	-0.70
Weekends	4.29	4.21	-0.08

#### CONCLUSION AND DISCUSSION

After an evaluation of the fundamental playing behavior one can conclude that the players of Space Merchant Realms are a very active and internet experienced group of players. That means one the one hand, that players actually spend much time for the game, on the other that they play MMOGs and PC-games already for a long time. Most of the players have their own internet connection for many years, too. The question on usage-motivations, which lead to the playing of Space Merchant Realms, could be answered. By factor analysis ten usage-motivation factors were extracted, which explain together 67.175 % of the all over variance. The factors "competition / learning", "integration of reality / friendship" and "escapism" are the most important. Also the playing-experience was a central part of this investigation and integrated into a question. This could be likewise answered by factor analysis. Four factors are shown up, which describe playing-experience and explain together 58.5 % of the all over variance. Here the dominant factor was playing-experience as "experience in community / challenge". After that follow with "creativity / exploration / friends" and "relaxation" two other factors of playing-experience. The factor of playing-experience as "thrill / mathematics" is of smaller importance.

The last and most important open research question about the changes of usage-motivations, gameplay-experience as well as playing-behavior after ten weeks, is answered, too. Here six of the ten motivation factors, which describe usage-motivation remain constant, while four factors show positive changes. That means, that the importance of these four factors of usage-motivation rises for the players. In the case of gameplay-experience factors the opposite is true. Excepting one constant factor, their importance decreases partially strong. That points to the fact that gameplay-experience decreases generally. The usage-time changes negatively, too, within ten weeks. Here a speculative connection between the reduced gameplay-experience and the decrease of usage-time could be designed. It is however realizable to keep the gameplay-experience and the usage-time constant by inserting certain play contents into the game, which stimulate the corresponding feelings.

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